Benzmüller, Christoph Ewald

Academic Degrees: Dr.-Ing. habil. Dipl.-Inform. **Nationality:** German **ORCID ID:** 0000-0002-3392-3093
Website: christoph-benzmueller.de **Research areas:** AI, Computer Science, Philosophy, Mathematics, NL

Education

07/1999–07/2007	Habil., Dep. of Computer Science, Saarland University, Saarbrücken, DE
04/1995–07/1999	Dr.-Ing., Dep. of Computer Science, Saarland University, DE
10/1989–04/1995	Dipl.-Inform., Dep. of Computer Science, Saarland University, DE

Current and Previous Positions

07/2018–ongoing	Guest Professor, Artificial Intelligence (AI), FU Berlin, DE
04/2020–09/2020	First UNA Europa (una-europa.eu) Chair, Freie Universität (FU) Berlin, DE
03/2017–12/2019	Visiting Scholar and Scientific Collaborator in AI, FSTC, University of Luxembourg, LU
09/2015–08/2016	Visiting Scholar, CSLI/Cordula Hall, Philosophy, Stanford University, CA, US
02/2012–01/2017	Heisenberg Fellow of the Deutsche Forschungsgemeinschaft (DFG), FU Berlin, DE
since 02/2012	Privatdozent, Computer Science and Mathematics, FU Berlin, DE
2008–2011	Senior Researcher, Articulate Software, Angwin, CA, US
2008–2009	Full Professor (tenured) for Formal Methods and AI, Intl. Univ. in Germany, Bruchsal, DE
2006–2007	Senior Research Fellow, Dep. of Computer Science, University of Cambridge, GB
since 08/2007	Privatdozent, Venia Legendi in Computer Science, Saarland University, DE
2001–2008	Associate Professor (C2/C1), Dep. of Computer Science, Saarland University, DE
2000–2001	PostDoc, AI and Computer Science, The Universities of Birmingham and Edinburgh, GB
1995–1999	Researcher, Dep. of Computer Science, Saarland University, DE

Awards and Honors

2020	Cover story on my research in metaphysics in French science magazine Science & Vie
2019	National Contact Point in Germany of CLAIRE AI Network (claire-ai.org)
2018	John-Jules Meyer Best Paper Award at DEON 2018 conference
2018	DFG mentor for 30th European Union Contest for Young Scientists (EUCYS) in Dublin
2012–2017	Heisenberg Fellowship, German National Research Foundation (DFG)
2015/2016	Central teaching award of FU Berlin for lecture on Computational Metaphysics
2014	Shortlisted for Amalia Preis für Neues Denken, Weimar
1996–1998	PhD scholarship of the Studienstiftung des Deutschen Volkes

Teaching and Supervision

Lecture courses & seminars: AI, AI & Ethics, Universal Logical Reasoning, Computational Metaphysics, Expressive Logics, Automated Theorem Proving, Semantics, Mathematical Assistance Systems, Q&A Systems
Supervision: Served as supervisor, co-supervisor, committee member or mentor of $\geq$ 25 PhD projects, $\geq$ 23 MSc/Diploma projects and $\geq$ 17 BSc projects in Computer Science, Mathematics and Philosophy. Highlight is the PhD thesis of Dr. Alexander Steen ($\geq$ 25 publications, summa cum laude, GI-Junior-Fellowship).

Organisation of Scientific Events and Experience as Publisher

European Summer School in Logic, Language and Information (ESSLLI, area co-chair for Logic & Computation) Conf. on Intelligent Computer Mathematics (CICM 2020, co-chair), German Conf. on AI (KI 2019, co-chair), LuxLogAI conf. with public debate on AI & Ethics at KPMG (2018, co-organiser), Intl. Joint Conf. on Rules and Reasoning (RuleML+RR 2018, co-chair), Global Conf. on Artificial Intelligence (GCAI 2016, 2017, co-chair), Conf. on Automated Deduction (CADE 2015, organiser), Automated Reasoning in Quantified Non-Classical Logics (ARQNL 2014, 2016, 2018, 2010, co-chair/co-organiser)

Commissions of Trust

Jury: Kurt Gödel Preis 2019, Kurt Gödel Freundeskreis, Berlin
Reviewer: DFG (DE), Austrian Science Fund (AT), Johannes Kepler Universität Linz (AT), Cambridge University (GB), King's College (GB), Czech Science Foundation (CZ), Nat. Sciences and Engineering Research Council of Canada (CA), Recherche en sciences & technologies de l'information (FR)
Editorial board: Logic J. of the IGPL, J. of Applied Logics (IfCoLoG), Historia Logicae

Memberships of Scientific Societies

2020–ongoing	World Congress on Logic and Religion, scientific committee
2020–ongoing	Conference on Intelligent Computer Mathematics (CICM), steering committee
2019–ongoing	Confederation of Labs for AI Research in Europe (CLAIRE), national contact point
2018–ongoing	Society of Deontic Logic and Normative Systems (DEON), steering committee
2018–ongoing	Berlin Mathematical School (BMS+)
2008–ongoing	Conference on Automated Deduction (CADE), elected trustee, vice-president since 2015
2015–ongoing	Association of Automated Reasoning (AAR), board member representing CADE
2014–2018	Spokesman of the section Deduction Systems of the Gesellschaft für Informatik, DE
2014–2016	Berlin Mathematical School (BMS), mentoring, gender and diversity committee
2010–ongoing	The International Federation for Computational Logic (IfCoLoG), executive board

Record of Third-Party Funded Projects

- CRAP (Volkswagen Stiftung, €120.000, 2018–2019): Consistent Rational Argumentation in Politics, PI
- Towards a Verifiable Smart Contract Language (BILLON SP. Z O.O., Warsaw, 2018), PI
- Trustful AI in Energy Production (Innovationsregion Lausitz GmbH, Cottbus, 2018), co-PI
- Leo-III (DFG, BE 2501/11, €276,218, 2014–2018): Effective HO Automated Theorem Proving, PI
- CompMeta (FU Berlin teaching award, €10.000, 2016): Lecture Course on Computational Metaphysics, PI
- CADE-25 (DFG, BE 2501/12, €21.600, 2015): Conference Support Grant for CADE-25 in 2015 in Berlin, PI
- Heisenberg fellowship (DFG, BE 2501/9, ˜€310.000, 2012–2017): Studies in Computational Metaphysics, PI
- ONTOLEO (DFG, BE 2501/6, ˜€102.000, 2009–2011): Cooperative HO ATP for Ontology Reasoning, PI
- THFTPTP (EU FP7-PEOPLE, 219982, ˜€130,000, 2008–2009): Intl. ATP Infrastr. for HO Logic, PI
- OMEGA (DFG SFB378, MI-04, ˜€900,000, 2001-2008): Agent-oriented Proof Planing, co-PI
- DIALOG (DFG SFB378, MI-03, ˜€900,000, 2001-2008): NL-based Maths Assistance Systems, co-PI
- LEO-II (EPSRC—EP/D070511/1, 2006–2007): LEO II: An Effective Higher-Order Theorem Prover, PostDoc
- CALCULEMUS (EU FP5—HPRN-CT-2000-00102, 2000–2004): Research Training Network, co-coordinator

Selected Keynotes

- *Ethico-legal governance of intelligent artificial agents – Can post-hoc normative reasoning competencies prevent AI systems from going rogue?* International Conferences on Logic and AI, Hangzhou, China, 2020.
- *Ethisch-rechtliche Kontrolle autonomer Systeme – Machbar?* AI in Automotive, Holiday Inn München, 2019.
- *Ethisch-rechtliche Kontrolle von KI Systemen.* AI Camp Wolfsburg, 2019.
- *Human vs. Nonhuman – The Need for Ethical Intelligent Systems.* Maria Sibylla Merian Centre Conviviality-Inequality in Latin America (Mecila) & Goethe-Institut São Paulo, Brazil, 2019.
- *Computational Metaphysics: New Insights on Gödel's Ontological Argument and Modal Collapse.* Formal Methods and Science in Philosophy III, Dubrovnik, Croatia, 2019.
- *A Flexible Infrastructure for Normative Reasoning.* 14th International Conference on Deontic Logic and Normative Systems, DEON 2018, Utrecht, The Netherlands, 2018.
- *Erwachen der Roboter.* Bundeszentrale für politische Bildung – bpb, invited panel debate, Berlin, 2016.
- *The OEB Plenary Debate 2016.* The global, cross-sector conference and exhibition on technology supported learning and training (OEB), 2016.

Career Breaks

2009–2010 12 months parental leave

2011–2012 3 months parental leave + 2 months care service

Ten Selected Publications

Citations (Google Scholar, 13 October 2020): 4081
h-index (Google Scholar, 13 October 2020): 32
i10-index (Google Scholar, 13 October 2020): 111
ResearchGate score (13 October 2020) 25.33
Erdös Number: 3 (D.M. Gabbay/S. Shelah/P. Erdös and also D.S. Scott/A. Tarski/P. Erdös)

Articles with scientific quality assurance

1. Benzmüller, C., X. Parent, and L. van der Torre (2020). "Designing Normative Theories for Ethical and Legal Reasoning: LogiKEy Framework, Methodology, and Tool Support". In: *Artificial Intelligence* 287, p. 103348. DOI: 10.1016/j.artint.2020.103348. Preprint: https://www.researchgate.net/publication/342146653 or https://arxiv.org/abs/1903.10187 — Scimago journal rating Q1 (AI, Language and Linguistics, Linguistics and Language)[1]
2. Benzmüller, C. (2020). "A (Simplified) Supreme Being Necessarily Exists, says the Computer: Computationally Explored Variants of Gödel's Ontological Argument". In: *17th Conference on Principles of Knowledge Representation and Reasoning (KR 2020)*. Ed. by M. Thielscher, D. Calvanese, and E. Erdem. AAAI Press. Preprint: https://www.researchgate.net/publication/342159229 — CORE conference rating A* (AI, Knowledge Representation and Reasoning)[2]
3. Benzmüller, C. and D. S. Scott (2020). "Automating Free Logic in HOL, with an Experimental Application in Category Theory". In: *Journal of Automated Reasoning* 64.1, pp. 53–72. DOI: 10.1007/s10817-018-09507-7. Preprint: http://doi.org/10.13140/RG.2.2.11432.83202 — Scimago journal rating Q2 (AI, Comp. Theory and Mathematics, Software)
4. Kirchner, D., C. Benzmüller, and E. N. Zalta (2020). "Mechanizing Principia Logico-Metaphysica in Functional Type Theory". In: *Review of Symbolic Logic* 13.1, pp. 206–218. DOI: 10.1017/S1755020319000297. Preprint: https://www.researchgate.net/publication/321160582 — Scimago journal rating Q1 (Logic, Mathematics, Philosophy)
5. Benzmüller, C. (2017). "Cut-Elimination for Quantified Conditional Logic". In: *Journal of Philosophical Logic* 46.3, pp. 333–353. DOI: 10.1007/s10992-016-9403-0. Preprint: https://www.researchgate.net/publication/293488069 — Scimago journal rating Q1 (Philosophy)
6. Benzmüller, C. and B. Woltzenlogel Paleo (2016). "The Inconsistency in Gödel's Ontological Argument: A Success Story for AI in Metaphysics". In: *IJCAI 2016*. Ed. by S. Kambhampati. Vol. 1-3. AAAI Press, pp. 936–942. Url: http://www.ijcai.org/Proceedings/16/Papers/137.pdf; Preprint: https://www.researchgate.net/publication/301295955 — CORE conference rating A* (AI, Machine Learning)
7. Benzmüller, C. and A. Pease (2012). "Higher-order Aspects and Context in SUMO". in: *Journal of Web Semantics (Special Issue on Reasoning with context in the Semantic Web)* 12-13, pp. 104–117. DOI: 10.1016/j.websem.2011.11.008. Preprint: https://www.researchgate.net/publication/221677796 — Scimago journal rating Q1 (Comp. Networks and Commun., Comp. Science Applic., Inform. Systems)
8. Benzmüller, C. and L. C. Paulson (2010). "Multimodal and Intuitionistic Logics in Simple Type Theory". In: *The Logic Journal of the IGPL* 18.6, pp. 881–892. DOI: 10.1093/jigpal/jzp080. Preprint: http://christoph-benzmueller.de/papers/J21.pdf — Scimago journal rating Q1 (Philosophy)
9. Benzmüller, C., C. Brown, and M. Kohlhase (2009). "Cut-Simulation and Impredicativity". In: *Logical Methods in Computer Science* 5.1:6, pp. 1–21. DOI: 10.2168/LMCS-5(1:6)2009. Preprint: http://christoph-benzmueller.de/papers/J18.pdf — Scimago journal rating Q1 (Computer Science, Theoretical Computer Science)
10. Benzmüller, C., C. Brown, and M. Kohlhase (2004). "Higher-Order Semantics and Extensionality". In: *Journal of Symbolic Logic* 69.4, pp. 1027–1088. DOI: 10.2178/jsl/1102022211. Preprint: https://www.researchgate.net/publication/38338872 — Scimago journal rating Q1 (Logic, Philosophy)

[1] See https://www.scimagojr.com; Q1 ist best.
[2] See http://portal.core.edu.au/conf-ranks/; A* ist best.